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GEOCHEMICAL REPORT

Falconbridge Nickel Mines Ltd.

SUMMARY OF WORK DONE ON BANKS ISLAND IN 1975

S. Zastavnikovich

Vancouver, B.C., March 1976

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Appendix A: Summary of Trench Assay Results

Synopsis

During the 1975 field season an extensive geochemical survey was undertaken on the Banks Island property in search of additional gold mineralization, away from the several known occurrences. Initially the 'A' Horizon soils were collected over a total of twenty-eight precut line miles on three separate reconnaissance grids - The Con, Waller-Arseno, and the Foul Bay - on four hundred foot line spacings at twentyfive foot sample intervals along the lines. Some 5,800 samples were collected resulting in three anomalous areas being isolated for followup work. A fourth reconnaissance grid, the Lily, was added later during the summer on which six miles of line were cut and chained by the sampling crew and 1,300 more samples collected. In the fall additional sampling over anomalous areas, where three follow-up grids -The Disco, G-H Con, and the Waller - were created by extending the original anomalous lines and adding new lines in between and across at two hundred foot intervals, resulted in seven more line miles and some 1,200 follow-up samples. Both the recce and the latter samples were analyzed for three indicator elements - Zinc, Silver and Arsenic in the company's lab in Vancouver until its closure and later by Bondar-Clegg laboratories. Due to the austerity program only the barest minimum of anomalous samples was analyzed this winter for gold itself. These results proved somewhat more encouraging than the corresponding assays from pits dug over the anomalous recce samples last fall. All the results of this survey are presented on three 1:200 scale reconnaissance maps and the detailed work is shown on the three 1:100 large scale maps found in the back of this report.

THE RECONNAISSANCE WORK

Discussion of Results

Small scale orientation surveys done on Banks Island in 1974 over the known gold occurrences at the Discovery, Kim and Bob Zones showed the best tracers for gold mineralization to be elements Silver and Arsenic, followed by Zinc, useful in early stages, and Mercury, a rather erratic indicator. Experimenting with various soil horizons indicated that the readily available A-Horizon generally contained greatest amounts of all indicators. Over mineralized veins all element values in soils increased with depth, this was especially true of gold. Thus the A-Horizon was selected for sampling and, as the cost and sample size for direct gold-analysis were prohibitive, all the samples were analyzed for the three best indicators : silver, arsenic and zinc.

Preparatory planning included considerations of the most useful manner of coverage - grid-line sampling vs sampling along lineaments, etc. A lineament map on 1:1000 scale was prepared by B. Manchuk from air photographs, but the lack of a large scale topographical map and the need for geological mapping control necessitated creating a grid system. A total of 28 miles of line were cut on three separate reconnaissance grids - The Con, Waller-Arseno, and the Foul, designed to cross as many structural breaks as possible. Sampling at 25 foot intervals on lines 400 feet apart was thought to provide the best coverage per number of samples collected. The need for short sample interval is repeatedly illustrated by results - frequently a single high value will identify a narrow anomalous feature stretching across two or even three widely spaced lines. The resultant sample density was 200 samples per line mile and the collecting productivity ranged from 40 to 70 samplesper man day, depending on experience, distance, weather etc. During recce sampling the crew consisted of four student samplers, I. Smith, P. Shaw R. Conte, R. Majuri and myself, with constant help from B. Manchuk who postponed mapping in order to help complete the early sampling stage as quickly as possible. Later on most of the sampling was done by myself, with intermittent help from an assistant. Lack of sunshine made R. MacPhee's indoor drying scheme very useful, and a single helicopter roundup of the most distantly stashed samples proved extremely time saving, but the daily wrestling with 50-70 pound loads over swampy terrain caused physical exhaustion of samplers far exceeding the normal wear and tear of bush crews.

After a mid-summer visit by S.N. Charteris and I.L. Elliott, it was decided to create a fourth reconnaissance grid, the Lily, between the Arseno and Waller ends of the W-A grid. Six miles of line were chain and compassed on this fill-in grid, and sampled. At this time the results from earliest sampling were trickling in and a strike of 400 feet × of line was reported extremely anomalous in silver, and another area appeared uniformly anomalous in zinc. Both being single-element anomalies, together with lack of field evidence, caused skepticism - yet excitement prevailed until further sampling eliminated the laboratory-caused anomaly. Except for these instances, the rest of results proved to be highly repeatable.

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Once the results were plotted it seemed that many narrow one or two-sample anomalous values were identified more readily with structural breaks, especailly in the intrusives, and sometimes contacts, than with the rock types. Hoping that a topographical map would help identify mineralized lineaments from the barren ones, I spent some time constructing such a 1:200 scale map from the samplers' field notes and air photographs, identifying as many such features as possible. As the Con grid is the most dissected, that area was done first, but once the topo map was superimposed, the number of anomalous silver and arsenic samples was found to be too small for meaningful correlation. Thus the topo map, though completed, is not included in the report and making of similar maps for the other two grids was abandoned.

A total of 6,800 reconnaissance samples was analyzed, and the results presented on Maps #2, 3 and 4. All anomalous values for each element are coloured; the wide line spacings make contouring undesirable as this would readily create false outlines.

After much statistical classification and manipulation, no distinction in zinc values could be made according to rock type; the other two elements being mostly below detection limits did not yield sufficient number of values for comparison. The lower anomalous limit for zinc was around 40 p.p.m., for silver around 0.5 p.p.m., just above detection limit, and similarly for arsenic, around 5-7 p.p.m. At lines 400 feet apart an ore lens half way between could give little expression on either line thus all even barely anomalous values must eventually be explained.

-4-

The Con Grid - Map Fig. #2

The first to be sampled, this grid of 14 line miles produced 2,800 samples and one distinct area for follow-up work, shown as Area 1 on the map. Identification of mineralized lineaments on a topo map constructed for this grid proved unsuccessful due to lack of sufficient number of detectable silver and arsenic values.

The heavy arsenic anomaly at south end of line 60E is associated with the nearby Kim ore zone and the large silver anomaly on peninsula in Hepler Lake has been previously investigated in '64. (Please refer to B. Manchuk's current geological report for location of all previous grids, conductors, assays, etc.) A handful of these highsilver samples were composited and analyzed for gold with negative results, however, other anaomalous samples remain to be so tested. The extensive multielement anomaly of Area 1 is presented separately as the "G-H Con" follow-up grid.

Waller-Arseno Grid - Map Fig. #3

The second to be sampled this grid consisted of two ends without a middle, which was later added as the Lily Grid, thus providing continuous coverage from Arseno Lake to Waller Lake. The grid had 8 line miles cut initially, producing 1,600 samples and two anomalous areas for follow-up work, Areas 2 & 3, presented as the Disco and ' Waller grids on detailed maps.

-5-

The most interesting anomaly not discussed under follow-up headings is that centered on the Base line and Line 44E. Though weak in silver, it deserves further attention and should be better outlined by sampling several short lines in between. Occurring at junction of the large Quartz Ck fault and the narrowest segments of pyritized sediments, it could well become stronger in some direction.

This anomaly showed up after the season was over as it belongs to the late stage recce sampling during which some 6 line-miles were added with chain and compass and about 1,300 samples collected, 250 of which were not analyzed. The bonanza of this late sampling however is the intense multi-element anomaly centered around L-52E, 10S, the cause of which will be investigated early this spring.

Foul Bay Grid - Map Fig. #4

The smallest of the three recce grids, it did not give rise to any spectacular anomalies and no follow-up work was done on this grid. Some 1,300 samples were collected over 6.5 line-miles, mainly covering the favourable fault system, and the diorite-sediments contact southeast of the McIntyre zone. All the sampling results are presented on Map Fig. #4, including the two dozen composited samples analyzed for gold.

The results surprisingly indicate the only detectable gold values south of the O.B.L. near Foul Bay, with the best value of 60 p.p.b. at south end of L-32E. An earlier neighbouring grid done in '73 over GRO claims showed good anomalies in arsenic, silver, lead and zinc, but poorly correlated, due I believe to inhomogenous sampling.

-6-

Most of the highly anomalous of these were tested recently for gold, with no detectable results reported. Still, further uniform sampling must be done in this area to resolve the anomalies.

THE FOLLOW-UP WORK

Discussion of Results

By adding sampling lines in between and across, or extending original ones where necessary, three detailed grids - The G-H Con, the Disco, and the Waller, were chain and compassed over the strongest anomalies at the time and sampled, resulting in a total of 1,200 samples. In each instance the 200-foot cross-gridding functioned as expected - it outlined the direction, average width, and often length of the anomalies. But to identify the strongest portion of each anomaly, which is probably still missing, (a Bob zone type of lens still has room to hide on these grids !), it will be necessary to sample on short lines, 50-100 feet apart, across each anomaly.

Near the end of the season a dozen or two pits were blasted in each anomalous area by R. MacPhee, and mapped by B. Downing near high recce values. These are shown on the detailed maps and B. Downing's assay tables presented as Appendix A. A minimum number of anomalous samples from each grid were composited to required volume and analyzed for gold. The results are presented on the maps, each gold value in p.p.b. is related to several nearby anomalous samples.

-7-

A comparison of pit assays and the nearest soil sample gold values usually indicates more gold in soil than rock ! However, this really reflects the benefit of detailed sampling, as at time of trenching only the recce results were available, thus most pits were dug in less than optimum places. Also many original one-line anomalies occurred in swamps, yet the place dug up was close to nearest outcrop, without knowing in which direction the anomaly extends.

Except for the Disco-Quartz Hill area, anomalies in the intrusives are usually of one or two-element type, often only one sample wide and can be correlated to structural features. Those found in metasediments are diffused, multi-element anomalies, often spanning the narrowest portions of thin sedimentary bands.

The G-H Con Grid - Map Fig. #5

This multi-element anomaly is intimately associated with the two very narrow, parallel, sedimentary bands south of the Meade Creek.

While arsenic follows the sediments, strongest zinc values are associated with cross-faults. Silver is marginally present; closer sampling should find more of it. Gold values for samples tested range from non-detectable to barely so, except for one 125 p.p.b. site. Further sampling and trenching should yield still better results.

The Disco Grid - Map Fig. #7

The area with highest silver and arsenic values, and strong zinc support,

-8-

this grid covers two seemingly separate anomalies lying in the two major faults - the old "Englishman" zone along the Branch Ck., and the Quartz Creek's sloughs, containing the extension direction of the Discovery zone. Neither of these anomalies is continuous however, which makes for slippery predicting without additional sampling.

Specifically, the L-68E, 11.50S anomaly does not follow the creek direction, but corsses it and follows along L-66E. The high arsenic at L-63E, 9S with associated gold is likely due to east-west lineaments, though the anomaly is in a high swamp. The elongated chain of sloughs at bottom stays uniformly anomalous, though rocks on either side lack mineralization. The strong values are difficult to label as "swamp anomaly" though for now that is what it seems to be. Pits dug along the slough and deep-sampled for gold would certainly help explain the anomaly.

To complicate the picture, the unexpectedly high polymetallic recce anomaly on Quartz Hill became known only after the field season was over, and will certainly require further sampling to outline its extent. It contains the highest soil gold values and if not due to unintentional salting from blasting done ten years ago, this one should prove more than interesting.

The Waller Grid - Map Fig. #6 (Area 2)

This area is still essentially at reconnaissance stage. Since the area north of the baseline was worked and trenched in ten years ago, more emphasis on further sampling in the southern portion is warranted.

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Since the anomaly contours remain uncertain and scattered, and gold was not detected in trenches and barely in soils, the southern area around the two creeks should be uniformly sampled in detail to outline the strongest portions of each anomaly accurately, resulting in better gold values.

The Cross-Break Area

No work was done in this area last summer except to confirm the one-sample-wide high arsenic anomaly, and to collect some 20 samples along the break at six locations. Anomalous arsenic and zinc were detected north of the baseline only. These were presented in the Budget Report, thus no map is included here. A small grid between these and some silver values further north, or one-line sampling in that direction would provide connection, if any exists, between them.

CONCLUSIONS AND RECOMMENDATIONS

Should the forthcoming drilling generate less than enthusiastic results, additional sampling will be needed to locate the strongest portion of each anomaly accurately. An attractive alternative would be to bring in a small caterpillar, now that specific areas of interest have been located. Depending on the success of this spring's drilling program, the following are some specific suggestions for detailed follow-up work :

-10-

1. All isolated samples with high silver or arsenic be composited and analyzed for gold. This is by far the cheapest manner of followingup such anomalies.

2. Final sampling should be done along the strike of each larger anomaly, and the deeper C-Horizon collected and analyzed for gold.

3. Pits at 50-foot intervals along the 1000-foot strike of the Discovery extension sloughs should be dug during the early spring dry season, and sampled for gold to locate the best drilling site.

4. Further prospecting and sampling of the Quartz Hill anomaly to outline it better before drilling.

5. Adding short, in-between, 200-foot interval lines across the sediments in the central portion of the Waller-Arseno grid.

6. Continuous trenching near Line-20S from 22E down to the Meade Creek.

7. A very small grid around the junction of Crossbreak fault and the large swampy creek north of baseline to help outline anomalous values.

8. Prospect and sample aorund the highest gold value south of the baseline near Foul Bay.

9. Come to terms with the Peninsula anomaly on Hepler Lake, including the possibility of sampling the lake bottom.

10. Detailed sampling is necessary to outline the extremities of the anomalies near Waller Lake.

Suggestions number 4, 7, 8 and possibly 3 and 5 will soon be done during my forthcoming trip to Banks Island, whereas number one depends on available funds. Other suggestions involve the need for a sampling crew and a further serious commitment of funds for geochemical work on Banks Island.

For future surveys of this type, large scale topographical maps are necessary for in-the-field pre-planning. Thanks to an above average crew, the sampling produced highly repeatable results, however, the size and weight of these samples dictates that other means, more efficient than back-packing, should be relied on to move tons of soil and water about ! As the amount of follow-up that can be done in the same season vaires directly as speed with which results can be returned to the field, the efficiency of each contributing step, sample drying, transportation, analysis, etc. should be maximized for best results.

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S. Zastavnikovich.

Vancouver, B.C. April 6, 1976 -12-

APPENDIX A

Summary of Trench Assay Results

G-H CON GRID, Banks Island (Fig. # 5)

- grab samples avg. trench size 8 x 4 x 5'

- Diorite
 Metasediments
 Limy metasediments

rench No.	Location	Rock type	Mineralization	Au Ag	Assay Cu	РЪ	Zn	Bedrock
				oz./st		00	, ,	
1.	24E/24+50S		none					No
2.	24E/24+25S	1	none					Yes
3.	20E/20+50S	3	py,po,±cpy	tr tr tr tr	0.08 0.01	0.01 0.01	0.01 0.01	Yes
4.	16+60E/17+25S	2,3	ру					Yes
5.	16E/18+25S	2,3	none					Yes
6.	`15+50E/18+50S	2,3	none	:			•	Yes
7.	15E/16+50S	2,3	ру,ро	tr tr	0.01	0.01	0.01	No (broken rock)
8.	11+75E/15+60S	2	py,po	tr tr	0.01	0.01	0.01	Yes
9.	24E/21S	1	none	•				Yes
10.	23+80E/28+25S	1	none			•		Yes
11.	20E/22+50S	3	ру		•			Yes
12.	17E/19S	3	py,±po					Yes
13.	17E/19+25S	3	py,±po					Yes
14.	11+75E/14+25S	2	py,po,±cpy	tr tr	0.01	0.01	0.01	Yes
15.	12E/11S	1	none					Yes
16.	12E/8+50S	3	py,po					Yes

				b samples . trench size 5 x 4	x 5,1		
			2. Met	Zone Granite asediments y metasediments	•	· · · · · · · · · · · · · · · · · · ·	• • • • • • • • • • • • • • • • • • •
rench No.	Location	Rock type	Mineralizati	on	Assay	en e	
				Au Ag oz./st	Cu Pl	b Zn	Bedrock
1.	44E/1+50N	2	ру				Yes
2.	44+25E/1+25N	2	ру		•		Yes
3.	20+25E/7+25S	1,2	none				Yes
4.	20E/9+25S	1	none				Yes
5.	20E/9+75S	1	none				Yes
6.	19E/11S	1	none		F		Yes
7.	18E/11+50S	1,2	none			•	Yes
8.	20E/15+25S	3	py,po	tr tr	0.03 0	.01 0.01	Yes
9.	16E/15+40S	2	ру				Yes
10.	16E/10+25S	2	py,±po				Yes
11.	16E/10S	2	ру		. ,		Yes
12.	16E/9+75S	2	ру				Yes
13.	16E/7+50S	2	ру				Yes
14.	12E/6+25S	2	ру		•	• · · · · · · · · ·	Yes
15.	12E/4+25N	2	ру	tr tr	0.02 0	.01 0.01	Yes
16.	12E/7+75N		none				No
17.	12E/7+50N		none	ter and a second se			No
18.	12+30E/1S	2,3	py,po	tr tr	0.01 0	.01 0.01	No (broken

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.

Trench No.	Location	Rock type	Mineralization Au	Ag C	Cu Pb Z	In Bedrock
. 19.	12E/5S	2	ру			Yes
20.	12E/9+75S	. 2	ру			Yes
21.	11+75E/10+40S	2	ру			Yes
22.	12E/10+50S	2	ру			Yes
23.	8E/7+25S	2	ру			Yes
24.	8E/8++75S		none			No

ENGLISHMAN ZONE, Banks Island

(DISCO Grid, Fig. # 7)

- grab samples - avg. trench size $5 \times 4 \times 5$; trench #11 is approx. 25 ft. in length

1. Metasediments

2. Kim Zone Granite

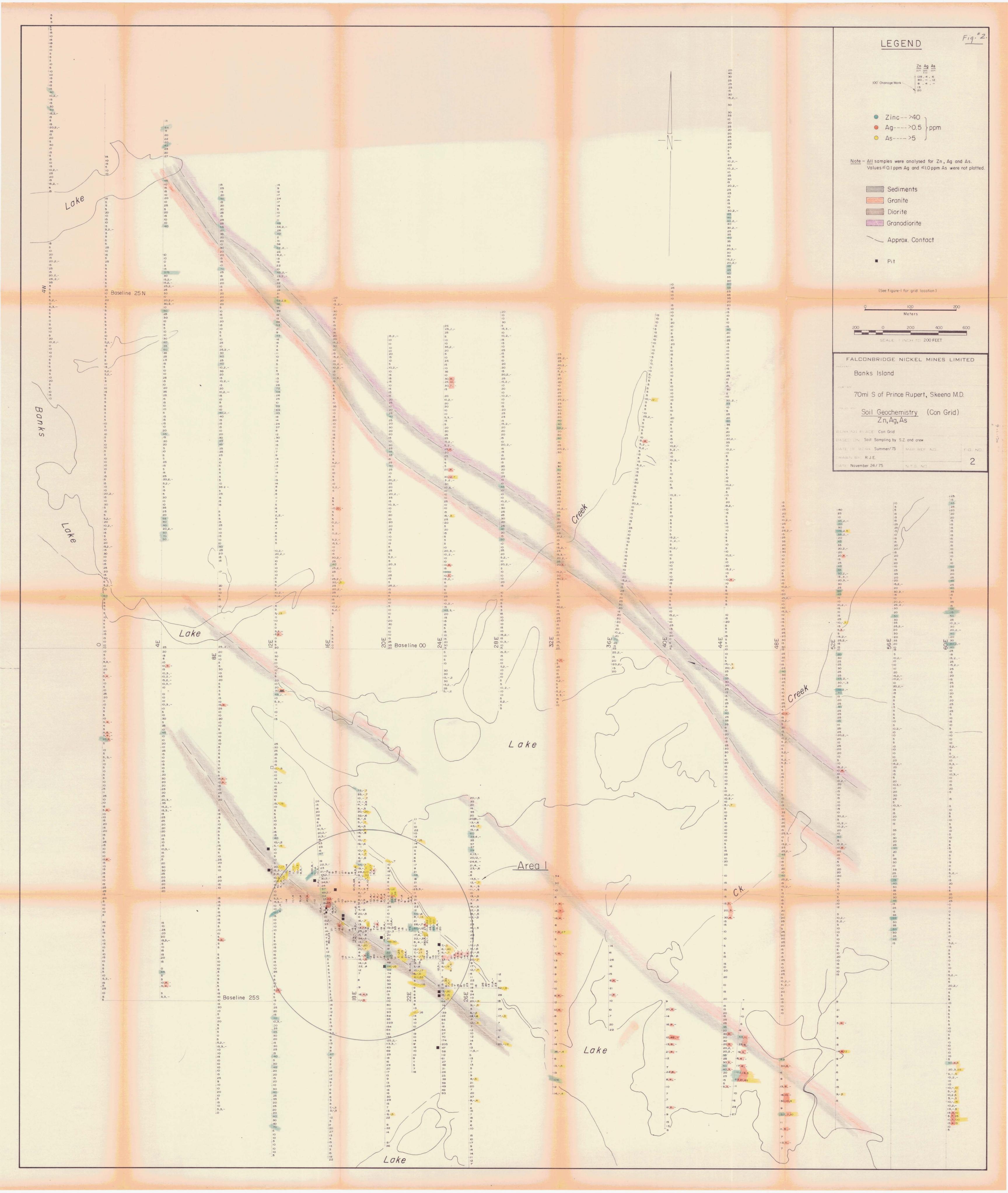
3. Altered/silicified granite ±mafics

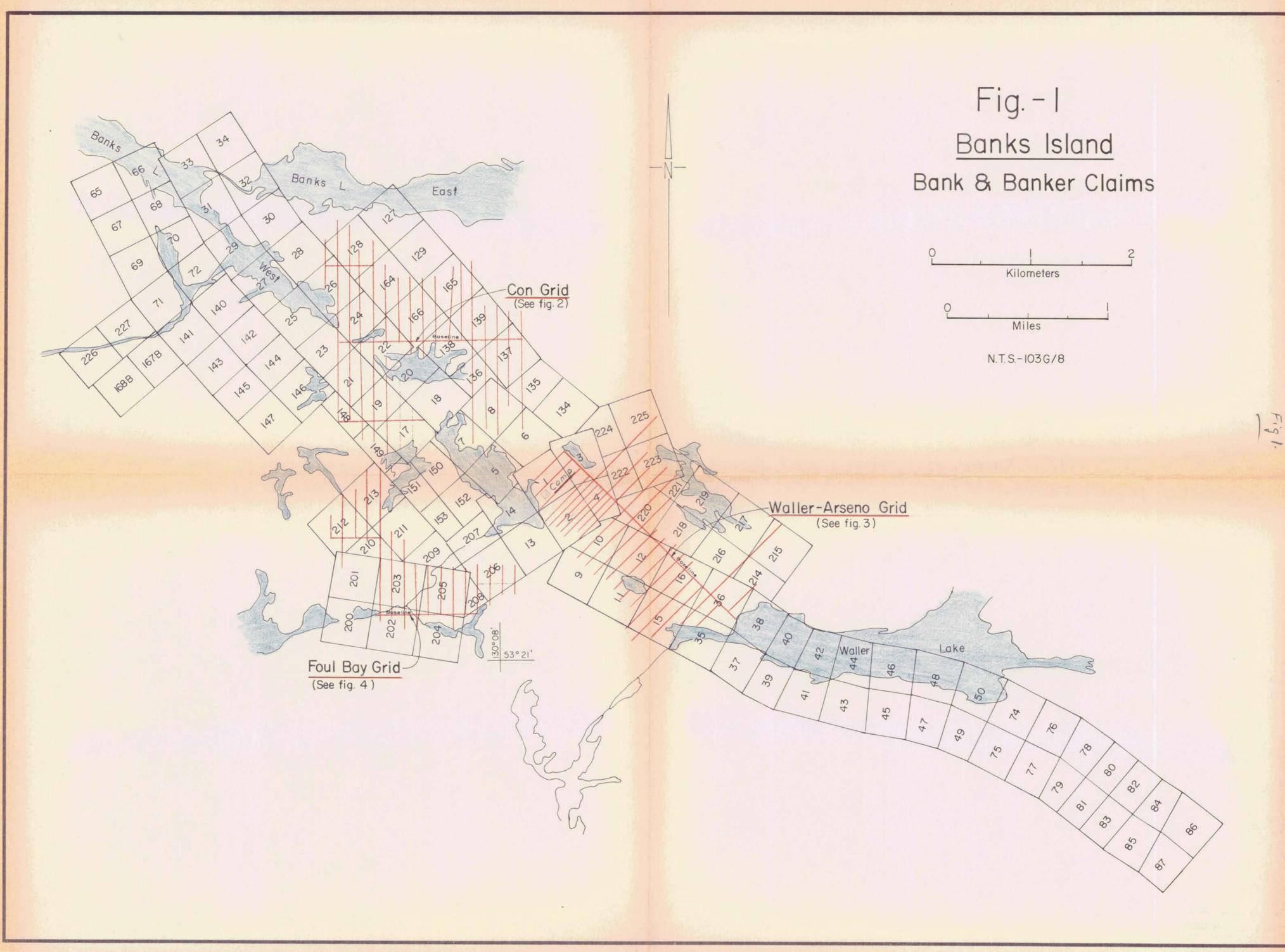
ench No.	Location	Rock type	Mineralization	• • • • • • • • • • • • • • • • • • •		Assa		, Buildinger i wirt tri i ein i i	Bedrock
		(outcrop &/or boulders)		Au oz./st	Ag	Cu	Pb %	Zn Sn	DUITUER
1.	66+20E/10S	2,3	py along fractures massive py	0.168 0.012	1.49 tr	0.01	0.04	0.60	No
2.	66E/10+10S	2	none						No
3.	65E/8+25S		none						No
4.	63+50E/9+25S	2	py along fractures						Yes
5.	63+30E/9+75S	2	none						Yes
6.	62E/5+75S	2,3	py along fractures,diss. py,aspy,ga;irregular,narro		0.80 0.10	0.01	0.05	0.38	Yes
7.	62E/5+50S	2,3	diss. py	0.010	tr				No (broken roo
8.	62E/5+30S	1	py along fractures						Yes
9.	66+80E/8+75S		none		e de la composition de la comp				No
10.	60+25E/5+40S	2		0.004	tr	0.07	0.01	0.03 Mo 0.02	Yes
11.	60E/5+60S	2,3	diss py,ga,sph	0.010 0.012 0.020	tr 0.20 tr	0.01 0.04 0.10	0.02 0.16 0.33	0.02 0.26 1.41	Yes
12.	60+25E/5S	1	py along fractures	0.004	tr	↓ • • ↓			Yes [.]

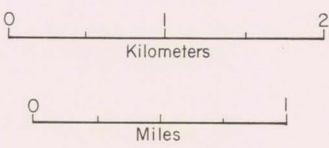
 \square

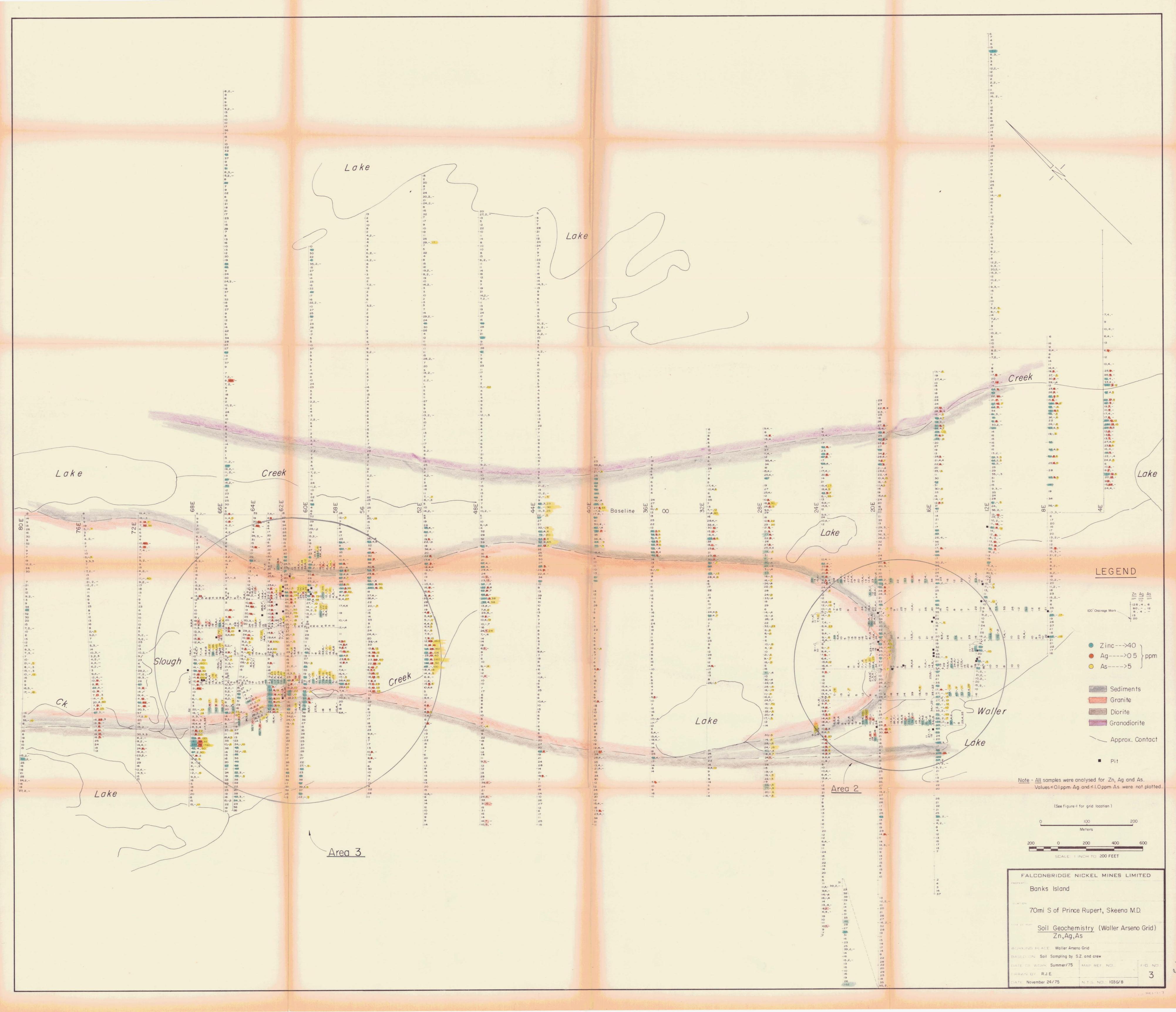
ench No.	Location	Rock type	Mineralization	Au Ag	Cu	Pb	Zn Sn	Bedrock
13.	62+50E/6+25S	2,3		0,004 tr				No (broken r
· .			py,aspy,sph,ga;irregu narrow veins	lar 0.804 1.01	0.03	0.33	2.56 0.02	(DIOKON I
14.	62+50E/7S		none					No
15.	62+40E/12+60S	2,3	diss. py	tr tr				Yes
16.	63E/7+20S		none					No
17.	66+40E/8+50S		none	· · · · · · · · ·				No
. 	63E/9+30S	float	py and quartz	tr tr				

ha kata p





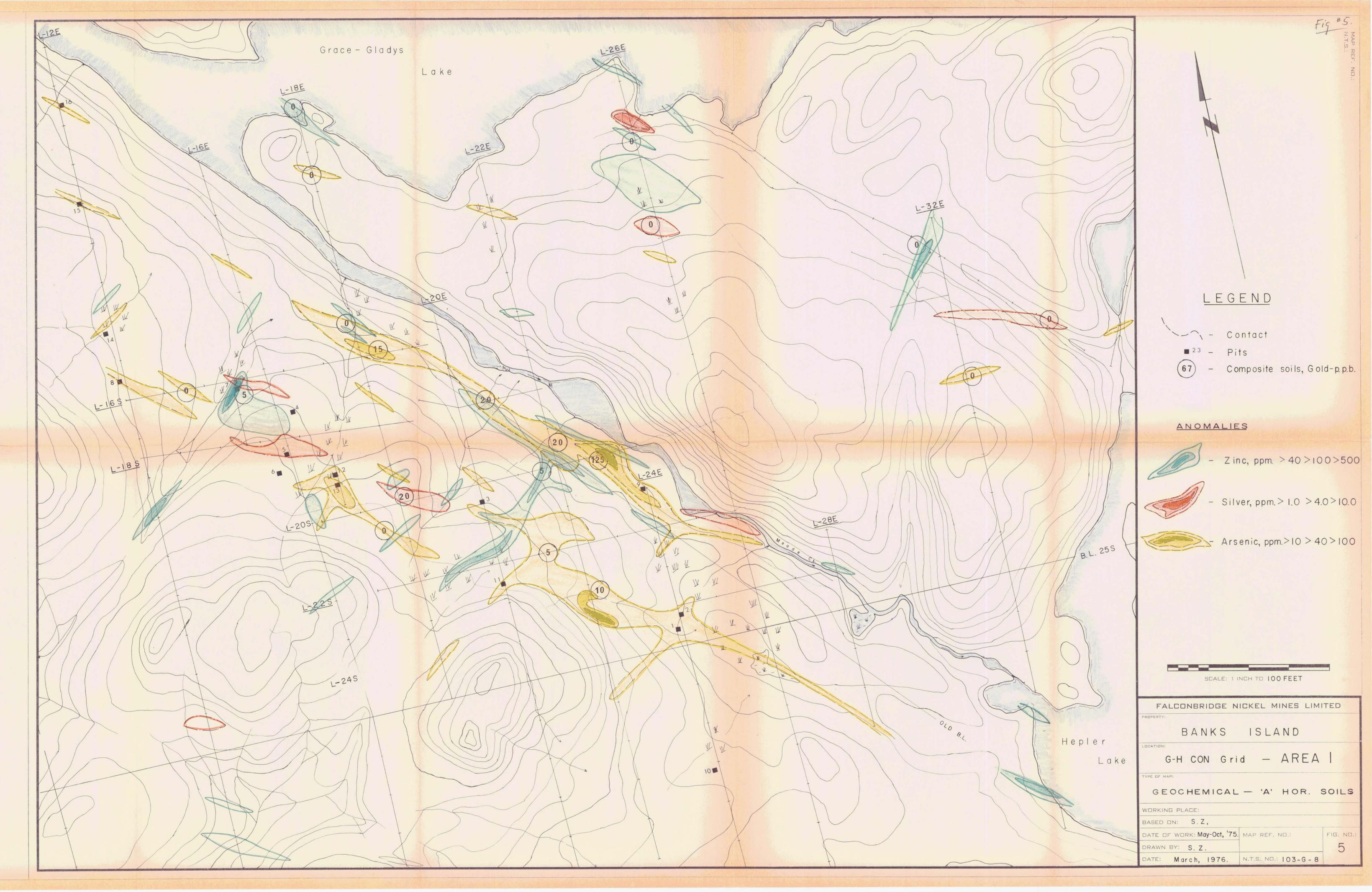






LEGEND	
$\frac{Zn}{porm} \frac{Ag}{porm} \frac{As}{porm}$ $\frac{125}{s}, 4, 6$ $\frac{BO}{s}, -, 12$ $\frac{B}{s}, 4, -12$ $\frac{B}{s}, 4, -12$	
 Zinc>40 Ag>0.5 As>5 	
samples were analysed for Zn,Ag and As. lues≤0.1 ppm Ag and ≤1.0 ppm As were not plotted.	
Sediments Diorite ,	Fig. 4
Approx. Contact	
• Gold, ppb.	
(See figure-1 for grid location)	
10,0 200	
Meters	
0 200 400 600 SCALE: 1 INCH TO 200 FEET	
BRIDGE NICKEL MINES LIMITED	
Island	
S of Prince Rupert, Skeena M.D.	
I Geochemistry (Foul Bay Grid) Zn, Ag, As	20
E Foul Grid Sampling by S.Z. and crew	HC1-1-0
	1.2
Summer/75 MAP REF. ND.: FIG. ND.: E. 4	2

+ 34 11 22,2,-13 - 15 10 21 19 - 25 8 14,2,-25,2,-- 28,3,-9 8 36 - 14 22,3,-16,2,-13 - 23,2,-8 7 7 5 19,2,-25,2,-23 - 30 13,2,-16,2,-13 - 25,2,-23 - 30 13,2,-16,2,-13 - 25,2,-23 - 30 13,2,-16,2,-16,2,-13 - 25,2,-23 - 30 13,2,-16,2,-16,2,-13 - 25,2,-23 - 30 13,2,-16,2,-16,2,-25,2,-23 - 30 13,2,-16,2,-25,2,-16 - 25,2,-23 - 30 - 38,2,-25,2,-16 - 17 - 19,2,-- 16 - 25,2,-10 - 38,2,-25,2,-10 - 38,2,-25,2,-10 - 38,2,-25,2,-10 - 38,2,-25,2,-10 - 38,2,-25,2,-10 - 38,2,-25,2,-16 25,2,-10 - 38,2,-25,2,-10 - 38,2,-25,2,-23 25 - 50 21 25,2,-21,3,-- 26,2,-21,3,-- 26,2,-21,3,-- 26,2,-21,3,-- 26,2,-21,3,-- 26,2,-21,3,-- 26,2,-21,3,-- 26,2,-21,3,-- 26,2,-21,3,-- 26,2,-21,3,-- 26,2,-21,3,-- 26,2,-21,3,-- 26,2,-21,3,-- 26,2,-21,2,-25,2,-21,3,--24,2,-25,2,-21,3,--24,2,-25,2,-21,2,-21,2,-25,2,-21,2,-



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